



# *Maintaining our emissions edge*

Protecting New Zealand's position as an emissions-efficient food producer

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# CEO's foreword



*A cooperative ethos – everyone being better off by working together – is a key element of Rabobank's DNA, and it's the same approach we take to sustainability*

*in New Zealand. Working together is even more vital in light of the pressures on farmers and growers have been under, and are under, with on-farm inflation and sector-specific issues – things are particularly tough for sheep farmers.*

In line with this, we are pleased to introduce the third paper in our white paper series, which explores the opportunities and challenges for New Zealand's 50,000 farmers, growers, marketers, supply chain and service providers (including ourselves) as we make necessary transitions for a lower-carbon future.

In our first white paper in 2022 – *Steering into the food transition*<sup>1</sup> – we presented evidence that climate change and the need for more climate-efficient production was coming ready or not. We made the case that environmental responsibility is simply good business and sought to encourage a sometimes uncertain sector to engage with the necessary transitions as an opportunity to improve farming businesses, not just to comply.

In July 2023, we published our second white paper – *The great New Zealand balancing act*.<sup>2</sup> We held out emissions efficiency as the key to balancing our competing national priorities to reduce emissions while maintaining global food security, national budgets and rural prosperity.

We are pleased to publish this third instalment in our series – a further deep dive into what we see as credible solutions most relevant to the ongoing conversation with New Zealand farmers, growers and food producers.

While the Coalition Government has taken steps towards a regulatory 'breather' for under-pressure farmers, other drivers such as international sustainability targets and new obligations within trade agreements will continue to provide strong incentives towards more emissions-efficient production.

As highly efficient producers, there is at least equal opportunity as there is risk for New Zealand farmers and growers. We recognise the role nationally agreed benchmarks and standards can play in identifying our most and least efficient producers to target incentives and support where they are most needed and provide a narrower focus for our national research and development investment.

As a farming nation, we can immediately feel the impact of climate change manifesting at rapid pace in the unprecedented weather patterns over the last decade. Being New Zealand's only specialist food and agri bank, Rabobank believes that what's good for the planet is also good for our clients' businesses.

We are driven in our work to support the resilience of rural communities, championing the role of food producers and promoting equitable transitions to lower emissions production. We trust this report is a valuable contribution to these ongoing transitions.

A handwritten signature in black ink, appearing to read 'Todd Charteris'.

**Todd Charteris**

*Rabobank New Zealand  
Chief Executive Officer*

<sup>1</sup> Rabobank. (2022). *Steering into the food transition*. In Rabobank New Zealand. Retrieved from <https://www.rabobank.co.nz/content/dam/ranz/ranz-website-images/rbnz-files/pdf/white-paper/rabobank-pinz-white-paper.pdf>

<sup>2</sup> Rabobank. (2023). *The great New Zealand balancing act*. In Rabobank New Zealand. Retrieved from <https://www.rabobank.co.nz/content/dam/ranz/ranz-website-images/rbnz-files/pdf/white-paper/rabobank-2023-white-paper--web-version.pdf>

# Executive summary

Many rural voices have been saying for some time that necessary transitions are being rushed and in some instances forced on them through unsympathetic government policies and stifling regulations.

The election of a new Coalition Government in October 2023 has to some extent addressed their concerns, with strong indications in coalition agreements and subsequent policy steps in June this year to confirm the removal of agriculture from the Emissions Trading Scheme (ETS) as part of a move to a lighter-touch regulatory regime for the environmental impacts of farming.

Taken at face value, this has given New Zealand's 50,000 farmers and the wider food and agricultural sector an expanded window of opportunity to transition their businesses. However, it would be unwise for farmers and the government to 'coast' during this respite before resuming the journey to sustainably reduce emissions from New Zealand agriculture.

There are other voices at the table that are getting louder. These are the voices of customers (with increasing expectations of the world's most powerful food processing and marketing companies) and from the wider supply chain, including investors, who also face significant regulatory pressures to minimise Scope 3 emissions.

One recent review<sup>3</sup> found that over 80% of New Zealand's exports are headed to countries with mandatory climate-related disclosures either in force or on the way, while free trade agreements are increasingly laden with enforceable obligations on emissions and other sustainability targets.

This growing web of international obligations will not afford New Zealand producers the same patience that the New Zealand Government has extended to them.

While regulatory pressures may have temporarily abated, Rabobank's view is that farmers and the the government should not get complacent and should use the rest of the dialogue and the timeframes to move forward to protect its pre-eminent role in global food production.





This is our third Rabobank white paper intended to help our farmer and grower clients and the wider food and agricultural sector continue forward with the transition to greater emissions efficiency.

It outlines three interlinked priority areas to move our food production system forward and maintain New Zealand's leadership position in global food and agricultural production:

1. A framework of standards and benchmarking to support efficient farms and improve average farms.
2. Clear and strong incentives for farmers and the food and agribusiness supply chain.
3. An environment that enhances research and development to drive innovation.

Human-generated climate change has accumulated and accelerated over tens of decades in association with the growing global population, the rise of industrialisation, consumption of fossil fuels and growth in all modes of production, including food and agriculture. Just as the issues have not arrived overnight, nor will the solutions. The New Zealand food and agricultural sector will be well served by reading the economic signals, not listening to the noise (from both sides) and by keeping up the focus on reducing emissions despite the current respite it may enjoy from local regulations.

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<sup>3</sup> Chapman Tripp. (2024). Protecting New Zealand's competitive advantage. The Aotearoa Circle. [www.theaotearoacircle.nz/reports-resources/protecting-new-zealands-competitive-advantage](http://www.theaotearoacircle.nz/reports-resources/protecting-new-zealands-competitive-advantage)



# *What should we make of the 'breather' on regulatory requirements offered to New Zealand farmers?*

**The Coalition Government elected in October 2023, in effect, has declared a regulatory 'breather' for New Zealand's food and agricultural sector and is now in the midst of rolling out a policy programme that reduces the near-term regulatory burden on farmers to reflect this.**

The coalition partners set out their intentions in separate coalition agreements between the National Party and each of the coalition partners. Despite the diverse voices involved, the coalition members largely agree on two key principles:

- A cut of farming regulations – with reversals of legislation on farming processes and reviews of methane targets and the Emissions Trading Scheme (ETS).<sup>4</sup>
- "Giving farmers the tools they need" – through increased innovation as a way to combat climate change and mitigate carbon emissions.<sup>5</sup>

Among the 'goodies' offered in the coalition agreements and the government's initial 100-day plan were the promise of a much lighter regulatory regime for GE and GM technologies, a push towards recognition for on-farm carbon sequestration, limits on the conversion of productive farmland for carbon farming and a rethink for a carbon pricing system for on-farm emissions by 2030. On 11 June 2024 – just ahead of Fieldays – the government confirmed the removal of agriculture from the ETS, the formal dismantling of He Waka Eka Noa and a new mechanism, the Pastoral Sector Group to explore mechanisms for tackling biogenic methane.

### *Rural sector responses*

Over the past six years, individual farmers and farmer advocacy groups, particularly Federated Farmers, have strongly maintained that the pace of change has been too fast and steadfastly made a case for the continued exclusion of agriculture from the ETS.<sup>6</sup>

Farmer discontent during the protracted process to develop and attempt to agree on He Waka Eka Noa – a proposed partnership between the agricultural sector and the government (Labour at the time) – eventually boiled over into the formation of direct-action groups such as Groundswell.

Confronted with increased workloads and compliance costs alongside steeply increasing interest rates, it is no surprise that recent Coalition Government measures to slow the pace of change have been warmly welcomed by farmer advocacy groups.<sup>7</sup>

Mood in the rural sector saw a distinct uptick in the Rabobank Rural Confidence Survey in December 2023, shortly after the formation of the Coalition Government. At that time, the survey found a remarkable 59% of farmers cited the potential change in settings for government intervention as the reason they expected the broader agriculture economy to improve. Another uptick in headline confidence was found in the March 2024 survey coming up to a net reading of -16%.

The latest quarter survey in June 2024 shows that overall rural sentiment remains subdued. More farmers expect the performance of the broader agri economy to deteriorate in the coming 12 months than those expecting it to improve. With headline confidence showing a net reading of -25 %, it is still considerably higher than the record low reading of -72% in October 2023 prior to the election that brought in the Coalition government.

With headline confidence generally trending upwards since October of last year, the survey also found farmers were now more confident about the prospects for their own farming business performance, with the net reading on this measure rising to -1% from -9% previously.

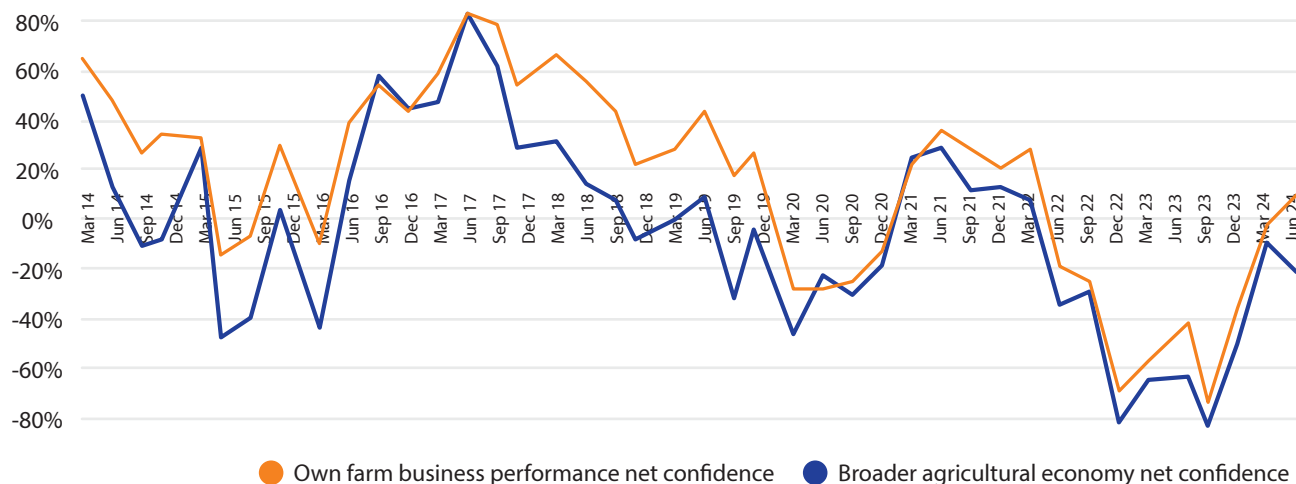
The main areas of concern cited by farmers in the latest survey were rising input costs (56%), falling commodity prices (40%) and rising interest rates (37%), with concern about regulation trailing at 22%.

Rabobank New Zealand has been advocating, including in our previous white paper (*The great New Zealand balancing act*), for the need to maintain balance in government policies between reducing emissions, increasing production and protecting the economic base of New Zealand and rural communities. We see this balance reflected in the intention of the current policy settings for the Coalition Government.

At the same time, however, the fundamentals of climate change have not changed. If anything, they have intensified. We share the views that some respite and reset for primary producers has been necessary. However, the thrust of this paper is that there remains a strong need for an equitable transition to greater emissions efficiency.



## Rural Confidence Survey net results as of June 2024



<sup>4</sup> [https://assets.nationbuilder.com/nationalparty/pages/18466/attachments/original/1700778592/National\\_ACT\\_Agreement.pdf](https://assets.nationbuilder.com/nationalparty/pages/18466/attachments/original/1700778592/National_ACT_Agreement.pdf)

<sup>5</sup> National. (2023, August 18). National backs farmers to cut emissions. [https://www.national.org.nz/national\\_backs\\_farmers\\_to\\_cut\\_emissions](https://www.national.org.nz/national_backs_farmers_to_cut_emissions). See also <https://www.beehive.govt.nz/release/agriculture-come-out-ets>

<sup>6</sup> Taunton, E. (2019, October 24). Decision to keep agriculture out of ETS 'a weight off farmers' shoulders'. <https://www.stuff.co.nz/business/farming/116821640/decision-to-keep-agriculture-out-of-ets-a-weight-off-farmers-shoulders>

<sup>7</sup> Beef + Lamb New Zealand. (2024, April 10). Methane targets and other recent announcements. <https://beeflambnz.com/news/methane-targets-and-other-recent-announcements>. See also <https://businessdesk.co.nz/article/primary-sector/agri-sector-doesnt-want-a-repeat-of-hwen>



## *Other key drivers of emissions reduction remain*

While taking advantage of the regulatory respite, New Zealand farmers need to keep a weather eye on the bigger picture. The other key drivers of necessary climate transitions, including the expectations of major customers and global trading partners, remain in place. They arguably pose an increasingly sticky web of obligations for New Zealand producers. New Zealand food and fibre sectors are currently well positioned to meet these obligations and maintain a competitive edge internationally as long as they keep sight of this bigger picture and do not become complacent about the rate of necessary change for our food production system.

### **Paris Agreement**

New Zealand signed up to the Paris Agreement in 2016. The purpose of the Paris Agreement is to keep the global average temperature increase to well below 2°C above pre-industrial levels while pursuing efforts to limit the temperature increase to 1.5°C. Under the Paris Agreement, every country needs to set out its own progressively more ambitious plan to cut emissions and adapt to climate impacts.

### **Domestic targets**

Set by the Climate Change Response (Zero Carbon) Amendment Act 2019, New Zealand has committed to emissions reduction targets with three components. These targets reflect a 'split gas' approach for domestic emissions, which considers biogenic methane separately from all other greenhouse gases (GHGs) and requires:

- reduction of emissions of GHGs (other than biogenic methane) to net-zero or lower by 2050 and beyond
- reduction of biogenic methane emissions by at least 10% below 2017 levels by 2030
- further reduction of biogenic methane emissions by 24–47% below 2017 levels by 2050 and beyond.



☞ *While the ongoing review and deliberations of the Pastoral Sector Group may provide an alternative perspective on practical feasibility of the current goals, it is clear that methane reduction is still at the forefront of New Zealand's climate change mitigation policies.*

In April 2024, the Coalition Government announced a review of domestic biogenic methane emissions reduction targets to be administered by an independent review panel to be completed by the end of the year. This review will be administered alongside that of the Climate Change Commission's review and advice on emissions targets also due this year and the deliberations of the newly formed Pastoral Sector Group (June 2024).

Debate continues on the best approach to balance environmental sustainability with economic impacts on the primary sector. While the ongoing review and deliberations of the Pastoral Sector Group may provide an alternative perspective on practical feasibility of the current goals, it is clear that methane reduction is still at the forefront of New Zealand's climate change mitigation priorities.

New Zealand farmers are still under the obligations of the Climate Change Response (Zero Carbon) Amendment Act as it is until changes are enacted by Parliament.

The review does not change New Zealand's international obligations under the Paris Agreement, nor does it affect the ultimate need for methane reduction as a means for climate change mitigation.

### Climate disclosure requirements

Climate reporting is "increasingly a must have to enable us to ensure market access";<sup>8</sup> according to a Chapman Tripp report finding that over 80% of New Zealand's exports, by value, are going to countries with mandatory climate-related disclosures proposed or in force. The report contends that, even if businesses are too small to be directly affected by changing government rules around the world, "they can still be caught out by customer expectations or by clauses in Free Trade Agreements that impose certain environmental requirements on us".<sup>9</sup>

This risk of being caught out certainly applies to New Zealand food and agricultural producers and processors, many of which are small or medium enterprises who may consider they are travelling under the global radar.

The report found that mandatory climate reporting has expanded significantly since the original 2017 Task Force on Climate-related Financial Disclosures (TCFD), and over 60% of world gross domestic product (GDP) is now subject to proposed or existing mandatory climate-related disclosures measures. The most well known of these include the Global Reporting Initiative (GRI), Greenhouse Gas Protocol and the Science Based Targets initiative (SBTi).



Over and above these mandatory frameworks there exists a growing web of private, non-government organisations and commercial frameworks and standards such as the Taskforce on Nature-related Financial Disclosures (TNFD).

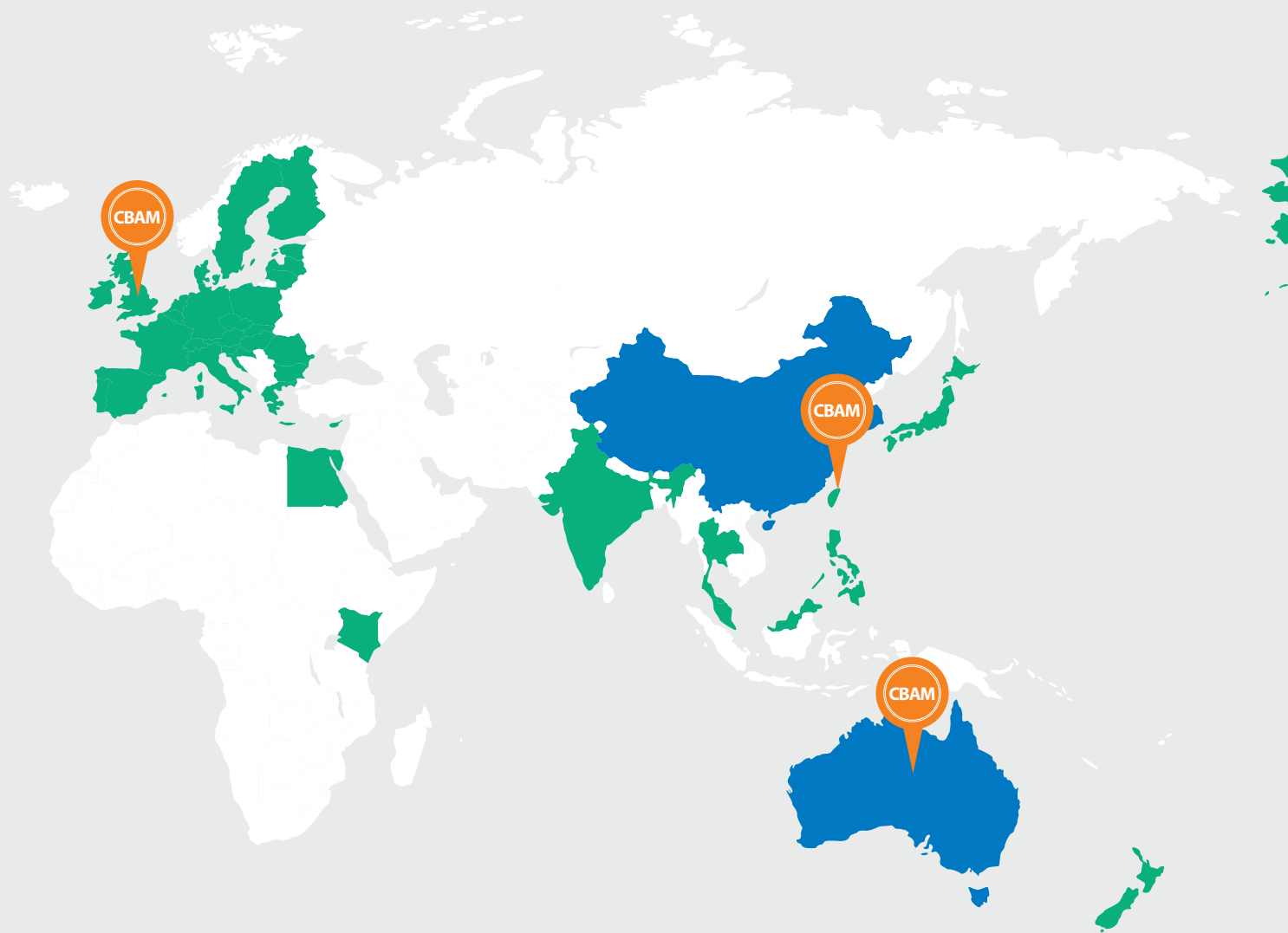
The Chapman Tripp report concludes: "To be well positioned as preferred suppliers to corporates adopting these voluntary frameworks, New Zealand exporters will need to anticipate and respond to voluntary market actions as well as regulatory disclosure obligations."<sup>10</sup>

<sup>8</sup> Chapman Tripp, 2024, p. 2.

<sup>9</sup> Ibid, p. 2.

<sup>10</sup> Ibid, p. 4.

# *At a glance: international climate and sustainability disclosure requirements*







## KEY

● **Mandatory climate-related disclosure reporting in force**

● **Mandatory climate-related disclosure reporting proposed**

Together, these export destinations with mandatory climate disclosure proposed or in place make up 80% of New Zealand's trade by value.

● **Carbon border adjustments mechanism in place or under consideration**

These New Zealand export destinations make up 40% of New Zealand export value.

Source: Chapman Tripp (2024)

## Trade obligations

Climate disclosure requirements travel hand in hand with increasingly 'tricky twin' trade obligations. For a nation such as New Zealand where 22.15% of GDP is derived from exports,<sup>11</sup> this is where the rubber hits the road in terms of the potential for international trading partners to exert leverage on our production systems.

Lobby groups have viewed the New Zealand-European Union Free Trade Agreement (NZ-EU FTA) as the poster child for these obligations, ensuring the issue of potential climate penalty fees has had its share of media time. However, the reality is that related obligations are also entrenched in the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP) and the New Zealand-United Kingdom Free Trade Agreement.<sup>12</sup>

Most notable is the NZ-EU FTA, having entered into force as of May 2024, removing duties on 91% of New Zealand's goods exports to the EU, rising to 97% after seven years, and increasing quotas on some products such as meats and dairy.<sup>13</sup> While the current NZ-EU FTA allows New Zealand to develop its sustainable development policies as it sees fit, the EU is certainly in a position to leverage its trading powers as New Zealand's fourth-largest trading partner and second-largest source of direct investment as a means to ensure a faster move on emissions reduction.

Announcements made in early 2024 have seen the EU pushing for all imports into the EU to comply with their soon-to-be implemented Climate Border Adjustment Mechanism (CBAM) and the European Union Deforestation Regulation (EUDR), which are both transitioning into implementation.

As high profile as the trade agreement obligations are, the sleeping giant in the room may be the CBAM. At this stage, levies only apply to a range of heavy industrial items such as steel and iron. However, the UK, Australia and Taiwan are shaping up as fast followers, and it cannot be discounted that the range of products targeted for levying expands, particularly if this mechanism is adapted as a form of trade barrier. Between these countries and territories alone, there is potential for 40% of New Zealand exports going to countries with CBAM in place or under consideration.

Missing targets embedded in trade agreements with our foremost trading partners and/or an inability to demonstrate progress on reducing CO<sub>2</sub> and methane emissions may rebound on New Zealand producers. This may show up in the form of direct imposts on the New Zealand taxpayer or through increased leverage of these missed targets as a form of non-tariff trade barriers for New Zealand products.



<sup>11</sup> <https://wits.worldbank.org/CountryProfile/en/NZL>

<sup>12</sup> Chapman Tripp, 2024, p. 31.

<sup>13</sup> <https://www.customs.govt.nz/business/tariffs/free-trade-agreements/new-zealand-european-union-free-trade-agreement>







## Customer pressures

The push by many major global food processors and distributors to reduce their Scope 3 emissions is a visible and active current driver of change in the food and agricultural sector. These pressures are as yet only nascent in end consumer buying preferences but appear to be gaining strength by the year, particularly in Europe.<sup>14</sup> They are expressed much more directly and strongly through global food processing and marketing companies and also from global financial markets increasingly coupling sustainability performance to capital.

Leading global dairy companies have been active in pursuing greater emissions efficiency for many years, initially through productivity gains, but there is broad understanding across the dairy sector that more comprehensive reduction strategies are required according to Rabobank's Global Research Team.<sup>15</sup>

Most companies in the Global Dairy Top 20 – Rabobank's annual ranking of the world's 20 largest dairy companies by turnover – have set climate targets (see Table 1) or made a voluntary commitment with the SBTi, often guided by the global carbon footprint approach developed by the International Dairy Federation, a leading source of scientific and technical expertise for the sector.

The numerous steps to reduce emissions include “determining on-farm emissions, creating sustainability programs, and more recently incentivising farmer through result- and participation-driven premiums (“carrots”). At the same time “sticks” will remain part of the equation.”<sup>16</sup>

Table 2 indicates substantial progress on reducing emissions. However, it is likely that initiatives to date include the ‘low-hanging fruit’ and it may get progressively harder to reduce marginal emissions. It is also notable that Scope 3 emissions, which have previously been a secondary focus, have now swum firmly into view with likely cascading impacts on producers, including New Zealand farmers.



**Table 1: GHG emissions reduction targets by Top 10 dairy companies, 2023\***

Country of headquarters	Near-term GHG emissions reduction targets and 2050 commitments or ambitions	Scope	Baseline
1 Lactalis (FR)*	25% by 2025	1&2	2019
	50% by 2033	1&2	2019
	Net zero by 2050	All scopes	
2 Dairy Farmers of America (US)*	30% by 2030	All scopes	2018
3 Nestlé (CH)*	20% by 2025	All scopes	2018
	50% by 2030	All scopes	2018
	Net zero by 2050	All scopes	
4 Danone (FR)*	47% by 2030	1&2	2020
	42% by 2030	3 (non-FLAG)	2020
	30% by 2030	1&3 (FLAG)	2020
	30% by 2030 from fresh milk used in dairy products	Absolute methane emissions	2020
	Net zero by 2050	All scopes	
5 Yili (CN)*	50% by 2030	1&2	2012
	Net zero by 2050	All scopes	
6 Arla Foods (DK/SE)*	63% by 2030	1&2	2015
	30% by 2030 per kilogram of standardised raw milk and whey	3	
7 Friesland-Campina (NL)*	63% by 2030	1&2	2015
	38% by 2030 (combined Scope 3 target):	3	2015
	• 33% by 2030 for production of milk on member farms	3	2015
	• 43% by 2030 for purchased dairy products, packaging, selected raw materials, and external production	3	2015
	Net zero by 2050	All scopes	
8 Mengniu (CN)	Control carbon emissions intensity per metric ton of dairy product within 165 kg CO <sub>2</sub> e/metric ton by 2025 and 160 kgCO <sub>2</sub> e/metric ton by 2030	1&2	Unknown
	Net zero by 2050	All scopes	
9 Fonterra (NZ)*	50% by 2030	1&2	2018
	30% intensity by 2030	1&3 (FLAG)	2018
	Net zero by 2050	All scopes	2018
10 Saputo (CA)	20% in CO <sub>2</sub> intensity of operations by 2025	1&2	2020

Source: RaboResearch (2023)



**Table 2: Progress toward reaching near-term targets by Dairy Top 10, 2023**

	Country of headquarters	Scope	Target elapsed timeframe	Target completion
1	Lactalis (FR)* **			
2	Dairy Farmers of America (US)* **			
3	Nestlé (CH)*	All scopes (2025 target year)	57%	5%
		All scopes (2030 target year)	37%	2%
4	Danone (FR)*	1&2 (absolute)	20%	38%
		3 (non FLAG absolute)	20%	-2%
		1&3 (FLAG)	20%	27%
5	Yili (CN)* **			
6	Arla Foods (DK/SE)*	1&2 (absolute)	47%	46%
		3 (intensity)	47%	30%
7	Friesland-Campina (NL)*	1&2 (absolute)	47%	56%
		3 (members' milk)	47%	66%
8	Mengniu (CN)**			
9	Fonterra (NZ)*	1&2 (absolute)	42%	28%
10	Saputo (CA)**			

\* Company has an SBTi commitment.

\*\* Not all companies that have set an SBTi target have reported progress on active targets yet. Progress is reported through public company reports or the SBTi Progress Report.

## Keeping up the good work

The focus in this paper is the continuing pressure coming to bear on the New Zealand food and agricultural sector despite the apparent respite farmers are being offered by the government. However, before we dwell on three priorities to achieve further reductions in agricultural emissions, we must acknowledge the extensive work already completed or under way in the sector to maintain our competitive advantage as an emissions-efficient producer.

Implementing and scaling best-practice farming is key and many farm success stories exist, but there is no one size fits all. Our own customers and others in New Zealand are on the journey, often already for years, progressively introducing more emissions-efficient practices.

### These practices are being adopted with increasing consistency across New Zealand's dairy, beef and lamb sectors:<sup>17,18</sup>

- Better feed management, including high-energy grass feed, reduced excess protein, replacement of imported feed with farm-grown feed and novel feed additives.
- Improved herd performance through reduced diseases and milk waste (e.g. due to mastitis and somatic cell counts), high cows-in-calf rate and low replacement rate.
- Strong genetics and improved/new breeding techniques and technologies.
- Reduced and/or more efficient use of fertilisers and more sustainable fertilisers.
- Reduced methane emissions from effluent storage.
- Removing stock from pasture during winter or when soils are very wet, which might lower nitrous oxide emissions as microbes in the soil that convert nitrogen into nitrous oxide are at their most active when soils are very wet.

In the balance of this paper, we zone in on three interrelated priorities we believe hold the key to the New Zealand food and agricultural sector's ability to sustain and target its efforts over the long haul and minimise the risk of a 'boom and bust' structural cycle and mentality disrupting the food transition.

<sup>14</sup> Yara. (2023, February 28). Strong European consumer demand for sustainable food. <https://www.yara.com/corporate-releases/strong-european-consumer-demand-for-sustainable-food/>  
<sup>15</sup> RaboResearch. (2023, December). Global dairy companies taking the lead in reducing greenhouse gas emissions. [https://research.rabobank.com/far/en/sectors/dairy/global\\_dairy\\_companies\\_taking\\_the\\_lead\\_in\\_reducing\\_greenhouse\\_gas\\_emissions.html](https://research.rabobank.com/far/en/sectors/dairy/global_dairy_companies_taking_the_lead_in_reducing_greenhouse_gas_emissions.html)

<sup>16</sup> Ibid.

<sup>17</sup> AgMatters. (2023, January 31). Sheep & beef. <http://www.agmatters.nz/farm-types/sheep-and-beef>

<sup>18</sup> Fonterra. (2023, July 20). Fonterra increases emissions reduction ambitions. <https://www.fonterra.com/nz/en/our-stories/media/fonterra-increases-emissions-reduction-ambitions.html>

# Knowing the numbers – authoritative benchmarking to set the standard for emissions-efficient farming

## *Achieving a common goal requires sharing common tools*

There is a strong need to bring everyone across the value chain onto the same page. One major decision that needs to be made together – and agreed on – is a national approach on how we measure farm-level emissions and a benchmark of what ‘good’ practice and sustainable emissions levels look like.

On 11 June 2024, New Zealand farmers were also granted a reprieve from the previous requirement in place to report on farm emissions from the final quarter of 2024. As things stand, they currently lack a robust framework of standards, guidance or benchmarks to enable proper and consistent measurement of the impact their farming practices have on land, water and emissions.

This lack of common benchmarks inhibits good practice further up the value chain in agribusiness, food processors and consumer-facing branding as they are unable to convert their good practice to value.

We need to establish a comprehensive national framework of standards and guidance of good practice along with quantifiable benchmarks. Within this, a consistent and trusted approach to obtaining farm-level data on GHG emissions will be a key enabler to reduce emissions within the agricultural and land sector.

At farm level, this starting point is essential in allowing farmers and producers to measure and effectively prove where individual farms’

overall environmental impact stands. At a national strategic level, a clear understanding of the range and average of emissions in a particular sector and region is important to see which farms are already performing well and need further support and which farms are lagging and require assistance to improve on the spectrum of emissions intensity.

Public sector support will be key to providing the infrastructure to enable national adoption of data tools such as carbon calculators and the sharing of sustainability data (including GHG emissions data) within the supply chain and financial sector to the benefit of New Zealand farmers.

## *Data and tools to identify what ‘good’ looks like*

Beyond what data can show, a standardised framework of guidance is essential to provide clarity on what constitutes good practice in agriculture. Without such guidance, farmers may not fully comprehend the implications of their practices on environmental sustainability.

Collecting data is extremely important to determine where individual farms in New Zealand measure up to each other and their counterparts overseas, yet this is not standardised practice on our farms. Nationally, farmers are yet to have a clear understanding of the range of on-farm carbon emissions, where the highest and lowest carbon emitters sit and where the majority of our farmers sit on this scale.

<sup>19</sup> <https://www.mpi.govt.nz/funding-rural-support/farming-funds-and-programmes/productive-and-sustainable-land-use/farm-monitoring-and-benchmarking-project>

<sup>20</sup> Ministry for Primary Industries. (2021). Farm data builds picture of performance. <https://www.mpi.govt.nz/dmsdocument/48085-Farm-data-builds-picture-of-performance>





On-farm carbon calculators or emissions calculations can provide more definitive data to be shared along the supply chain and with other stakeholders, enabling a harmonisation of on-farm, supply chain and public policy targets. On the other side of the emissions equation, credible measurement tools are also required to enable recognition of on-farm sequestration and having corresponding rewards for farmers for providing positive environmental impacts.

There are currently different carbon calculators in the market ranging from privately developed assessment and verification programmes to free online rudimentary calculators relying on estimations. However, the proliferation of these different calculators, which serve different purposes and use different inputs, creates confusion around the usability of data that should be relied on to either underpin emissions reduction strategies or for compliance reporting.

With practicable data and empirical evidence, assessing the scalability and effectiveness of practices can help farmers make optimal decisions for their business. For example, carbon sequestration is commonly known and understood to be good practice although its effectiveness is questioned due to the approximate nature of carbon measurement at this time.

Technological platforms and data-gathering tools are also needed to minimise complexity of reporting. As with every new tool, navigation needs to be easy and automation needs to be as high as possible to minimise workload, costs, frustration and mistakes. This also requires extensive support and education so farmers accept the benefits of using these platforms.

## *Building blocks towards a national standard?*

Rabobank's experience with the Rural Client Photo provides some insights into the possible benefits of a more national and sector-wide approach in terms of understanding the extent and kinds of activity that farmer clients already have in train to reduce emissions and other environmental impacts.

The self-administered survey serves as a management tool to discuss climate-related resiliency and on-farm transitional plans as well as farm business ESG performance. By the end of 2023, 94% of clients with lending limits above \$1 million had been assessed via the Rural Client Photo, of which 85% had a farm environment plan and 41% had a GHG emissions number.

The responses provided from farmer clients enable Rabobank to categorise levels of environmental risk associated with a particular farming operation and, where required, undertake further due diligence prior to approving loans. The survey device is a pragmatic tool that serves as a filter to spotlight any farm businesses at risk of being operated irresponsibly. However, the experience with the Rural Client Photo highlights the potential for a more comprehensive, robust and nationally available tool.

On a related track, the Ministry for Primary Industries has been working on the Farm Monitoring and Benchmarking Project<sup>19</sup> since 2020, which looks to bring together production, environment and finance data from the five key types of farms: dairy, sheep and beef, deer, arable and horticulture. The Ministry acknowledges that having good-quality farm data will enable decision making for farmers and growers, industry organisations and policy makers.<sup>20</sup> Robust data collection and analysis is to assist with farmers' main objectives to:

- be more profitable
- farm even more sustainably
- improve farm management
- meet new environment regulations
- reduce agricultural GHG emissions.

By taking part, 1,600 farms were able to receive a package of business data, environmental planning support and tailored recommendations for improving farm performance, with 900 farms receiving their own farm environment plans.



# Credible carbon calculators – Rabobank Australia trials

### Implementing a credible carbon calculator, rolling it out on a large scale and professionally reporting results is not simple.

Since 2022, Rabobank Australia has run carbon calculator workshops with over 1,000 participants and gained key lessons into what works and what does not. With the few different calculators available and none yet endorsed and adopted nationally in New Zealand, the following insights should be considered when adopting a national model:

- **Training and support should be ongoing:** Understanding and operating the carbon calculators has been difficult for farmers and adds a layer of complexity in a completely new area of expertise for most farmers.
- **Deeper understanding of on-farm emissions can spur action:** For the first time, many gain a clearer understanding of the carbon footprint of their operation, which parts of their business are the largest emitters and which on-farm measures could move the needle to lower emissions from their operation.
- **There should be as few physical barriers as possible to tackling carbon calculations:** Manual work can be cumbersome. The industry and farmers should strive for automated solutions to avoid extra time being spent on administrative processes.
- **Information should be shared along the supply chain:** Data and information is valuable to the supply chain to support concurrent tackling of national and international targets and meet consumer demand for transparency.
- **A partnership approach is needed:** Only one in three Australian farmers surveyed were willing to share results and data on their on-farm emissions due to worry about sharing sensitive information and the associated feeling of overexposure. A supportive partnership approach is more likely to garner data and active participation.







# *Clear and strong incentives to support efficient farms and uplift average performers across the farmer base and supply chain*

In the pursuit of sustainable agricultural practices, New Zealand farmers face the triple challenge of growing food production and maintaining competitiveness in the global marketplace while addressing stretch targets to reduce emissions.

It has become evident that fostering meaningful change requires both the carrot and the stick. To simply enforce change through the cascade of sometimes arcane rules and regulations can add compliance complexity and financial and legal risks that only serve as a stick to farmers. Paired with carrots or clear strong incentives to farmers, more meaningful change is likely to happen.

## *Incentive-driven successes and policy-driven pitfalls*

The difference in outcomes between incentive-driven initiatives and policy-driven mandates is starkly shown by some of New Zealand's strongest competitors on the global agricultural market.

In the United States, industry-driven regenerative agricultural projects, buoyed by financial incentives introduced by food companies, saw a rapid increase in farmer participation and acreage expansion.

Conversely, the EU's mandates of the Green Deal have generated substantial resistance from farmers both inside and outside the EU. The Green Deal is seen by the sector as a potential cause for a reduction in agricultural land use and changes in farming practices that threaten ways of life or force the closure of farming operations. Between the lack of incentivisation and consultation with the industry, protests have erupted across the major food producers, including Poland, France and Germany. Most notably, in early 2024, French farmer protests have forced the reconsideration of the already agreed Green Deal, including the ambitious 50% reduction target of EU pesticide use by 2023.

<sup>21</sup> Rabobank. (2023, July 4). Regenerative agriculture, the solution to become future proof [Video]. YouTube. <https://www.youtube.com/watch?v=tTd-23EiGUQ>

<sup>22</sup> Cargill RegenConnect. <https://regenconnect.cargill.com/>

<sup>23</sup> ADM. (2023). Built to support farm legacies and consumer demand. <https://admadvantage.com/wp-content/uploads/2023/06/ILLINOIS-re-generations-sell-sheet-2023.pdf>

<sup>24</sup> Fonterra. (2023, December 14). Nestlé partnership sees extra payment offered to Fonterra farmers this season. <https://www.fonterra.com/nz/en/our-stories/media/nestle-partnership-sees-extra-payment-offered-to-Fonterra-farmers-this-season.html>





## *Rabobank and McCain team up to incentivise regenerative potato growing in the Netherlands*

In January 2023, Rabobank launched a partnership with global FMCG brand McCain to incentivise regenerative growing techniques by Dutch potato farmers. As Timothée Murillo, Director of Smart and Sustainable Farms at McCain Foods, explains, “For us, it all begins with potatoes, and good potatoes begin with healthy soils.” In the first cohort, 35 farmers were on board, and the partnership is targeting a further 35 growers during 2024.

### **Participants have been attracted by finance and non-finance incentives, including:**

- price premiums for farmers adhering to the standard of Master or Expert level of the Regenerative Agriculture Framework and achieving certain regenerative standards
- 1.5% interest rate discounts for sustainability-related investments (with the discount matched by McCain on equipment purchases)
- attractive loan terms such as higher loan-to-value ratios and longer grace periods
- three-year contracted supply agreements to McCain
- technical support provided by specialists in soil health and water resources protection, including baseline soil sampling and objective measurement through a biodiversity monitor.

Following the success of the collaborative project with McCain and strong uptake from growers, Rabobank is in discussions with at least half a dozen global household names and major cooperatives around the world to extend this programme incentivising sustainable production and modelling supply chain responsibility to help farmers transition to or maintain sustainable practices. Rabobank and McCain have produced a video on the programme.<sup>21</sup>

Similar support and incentivisation programmes are run by the likes of Cargill,<sup>22</sup> which entices farmers to start getting paid for carbon sequestration today, ADM<sup>23</sup> and other major players in food and agricultural products. In dairy, an example of the customer starting to pay directly is the agreements that Nestlé has with Synlait and Fonterra to pay farmers separate premiums of up to 2 cents per kilogram of milk solids for farmers who are making continuous improvement with on-farm sustainability.<sup>24</sup> These partnerships are part of Nestlé's global NZ\$2.25 billion investment (by 2025) to advance regenerative agriculture and reduce emissions.

## Balancing efficiency and environmental stewardship in New Zealand

While New Zealand farmers rank among the most emissions-efficient suppliers of dairy and beef globally,<sup>25</sup> maintaining this position demands concerted effort. Despite stable dairy emissions efficiency over the past 15 years, the influx of imported supplementary feed and fertilisers has offset gains from improved biological efficiencies of breeding. We need a multi-faceted approach that balances economic imperatives with environmental sustainability. Fairness is also critical.

We note the consistent calls from the New Zealand farming community for official carbon accounting mechanisms to better recognise the potentially vast and unaccounted levels of sequestration that occur at farm level. This can occur through pasture and soil formation and in the many plants on farm that have been traditionally regarded as sub-scale for carbon sequestration but nonetheless support sequestration goals, especially at the aggregate level of the industry.

As the Climate Change Commission noted, a “key concern raised by stakeholders throughout our inquiry is that it is unfair to face obligations for agricultural emissions while excluding some activities that sequester carbon and offset those emissions”.<sup>26</sup>

The Commission agrees it is important to account for emissions removals on farm alongside emissions sources and is doing further work to help resolve the continuing debate on whether to count small blocks of trees that currently don’t meet the definition of a forest under our international target accounting and New Zealand ETS accounting and also trees planted before 1990 that are still sequestering carbon.

Recognition for the inclusion of smaller pockets of trees and retention of pre-1990 forests would obviously be a significant incentive for farm business operators to protect and extend these carbon-sequestering features on farm.

### Navigating resistance to change

The allure of the status quo is strong, particularly for multi-generational farmers whose practices have yielded success over decades. The change asked for is not simply a change of process but in some cases a change for their whole way of life. It is imperative to acknowledge and address concerns and resistance stemming from the established positions.

Change for most people is uncomfortable and the unknown is often scary. Still, New Zealand farmers are savvy businesspeople who are used to change and have adapted in the past to remain successful. The challenge ahead will be to enable an industry-wide change successfully and at a rapid speed – a pace that many farmers are not used to.

Therefore, farmers must understand why the changes are necessary, how those changes can realistically be introduced and how risks can be mitigated.

Ultimately, introducing new practices to reduce emissions brings benefits that go beyond environmental protection. The transition to sustainable farming practices will help to benefit farmers financially, keeping their operations competitive in the global context – a benefit that does not often get the same breakthrough in the cultural discourse.

Successful change is best driven by intrinsic motivation – a behavioural change that taps into personal fulfilment or joy to determine the way we act or drive a change in behaviour. Such intrinsically motivated change is very difficult to achieve across an entire sector as diverse in practices and history as New Zealand’s 50,000 farms. Nevertheless, as part of the task ahead in New Zealand, there are three essential factors to consider for encouraging intrinsic motivation:

- **Autonomy:** Many farmers are hands-on, making autonomy central to farmer identity. Consequently, the loss of autonomy reduces farmer wellbeing. Communicating the reasons and ultimately the wide-ranging benefits of change provides individuals with the opportunity to make a choice on their own accord.
- **Mastery:** After decades of the same or similar practices, major changes from tried and true operating practices can be challenging for the operator’s confidence. A realistic timeline, a variety of tools and options, support through the learning process and rewards for successes are key to mastery of the new and are all crucial for a successful transition of New Zealand’s farming sector.
- **Connection:** Understanding how an individual farm can impact the value chain can provide a sense of purpose and a better understanding of how farmers relate to other stakeholders. The sustainability tasks ahead for New Zealand’s farming sector can only be solved in partnership locally, nationally and internationally to allow farmers to adapt while staying competitive in local and global export markets.

<sup>25</sup> Wannan, O. (2023, January 11). The whole truth: Are New Zealand farms the world’s greenest? <https://www.stuff.co.nz/national/the-whole-truth/130789439/the-whole-truth-are-new-zealand-farms-the-worlds-greenest>

<sup>26</sup> Interim Climate Change Committee. (2019). Action on agricultural emissions: Counting carbon sequestration by trees and vegetation on farms (p. 1). Climate Change Commission. <https://www.climatecommission.govt.nz/public/Advice-to-govt-docs/ICCC-technical-appendix-8-carbon-sequestration-on-farms.pdf>







## Balancing positive incentives and change management governance

Effecting significant and lasting change across New Zealand's vast agricultural landscape means navigating complex socio-economic dynamics. Primary industries deliver around 5.7% of New Zealand's GDP<sup>27</sup> and more than 80% of trade,<sup>28</sup> with 50,000 farms and over 100,000 individuals directly employed in the sector<sup>29</sup> and many more indirectly employed in supporting businesses along the food supply chain. A strongly collaborative effort across the public and private sector underpinned by clear strong incentives is essential to drive widespread adoption of change on farms.

## Change management approach to governance

Drawing inspiration from successful change management models employed by global institutions such as IBM, General Electric and Ford, New Zealand's agricultural transition requires a professional change management approach. Clear governance structures, coupled with incentive mechanisms, deliver the best chance of executing the country's 'great balancing act' of emissions reduction, food security and economic prosperity.

Change models (see Figure 1) usefully elaborate the mutually contingent stages involved in making systemic change. By aligning New Zealand's agricultural transition with these principles or a similar model, policy makers can foster a culture of innovation and collaboration essential for realising sustainable farming practices.

## Incentivising transition rather than cost-based enforcement

The government's role must shift towards delivering incentives that inspire adoption of sustainable practices rather than burdening farmers with increased costs. Imposing emissions prices risks impacting the industry as a whole from on-farm experience to the competitiveness of New Zealand products on the global marketplace.

**For farmers**, who will not be professionals in market mechanisms and pricing of emissions, this may add extreme price risks. Increased costs with emissions pricing may spur a set of farmers to further improve their emissions efficiency although this path may also inadvertently reduce the industry's output as some will simply produce less to meet their own budget. Reduced output will drive down employment and ultimately the prosperity of rural communities.

**For the wider supply chain**, emissions pricing introduces financial complexity, and variable pricing mechanisms pose significant risks to everyone along the supply chain from farmer to consumer. To give an idea of the complexity and scale of risk, 40 national jurisdictions and 25 sub-national jurisdictions currently put a price on carbon, covering 8 gigatons of CO<sub>2</sub>e, which equates to 15% of global GHG emissions.<sup>32</sup>

Trading in New Zealand Units (NZUs) has shown significant price volatility over the past two years,<sup>33</sup> and several successive ETS auctions have notably failed to clear.<sup>34</sup> Emissions pricing in other countries has been similarly volatile.<sup>35</sup> For example, since the opening of the EU ETS, prices for EU emissions allowances have at times experienced jumps and at others converged to zero due to excess supply.<sup>36</sup>

**For the wider economy**, escalating costs on farms diminish the competitiveness of New Zealand's farm products on the global market. For a highly export-dependent food and agricultural sector, the loss of competitiveness can potentially risk volume and income losses at a time when food and fibre have already been declining as a proportion of GDP.

One tangible step for the government would be to allow for and accredit specific systems capable of tracing carbon improvements through the chain to food companies and supermarkets that may wish to start applying a premium for low-emissions food and require a guarantee that it is not greenwashing. A successful offshore example of this is ADM in the United States, which offers a comprehensive framework of measurement tools and certification to support claims of regenerative agriculture.<sup>37</sup>

Training and support for these tools and education on programmes and measures that effectively reduce emissions on farm are other forms of non-financial incentive to drive adoption by farm business operators.

By embracing positive incentives and drawing from successful change management models, policy makers can steer the country towards a sustainable and prosperous future. Fostering collaboration, innovation and resilience within the agricultural community will be key to realising the vision of a balanced and thriving agricultural sector.

<sup>27</sup> <https://rep.infometrics.co.nz/new-zealand/economy/structure>

<sup>28</sup> Ministry for Primary Industries. (2020). Introducing New Zealand's primary industries: An outline of New Zealand's primary production and regulatory system for export. <https://www.mpi.govt.nz/dmsdocument/39515/direct>

<sup>29</sup> <https://figure.nz/chart/tAQeOoJ0aDCZo3ER-pLdYfxMIHKcmcUfZ>

<sup>30</sup> Kotter, J. P. (2012). Leading change. Harvard Business Review Press.

<sup>31</sup> Rabobank. (2024). NZ Sustainability Report Rabobank New Zealand 2023 <https://www.rabobank.co.nz/content/dam/ranz/ranz-website-images/rbnz-files/pdf/rabobank-sustainability-report-2023.pdf>

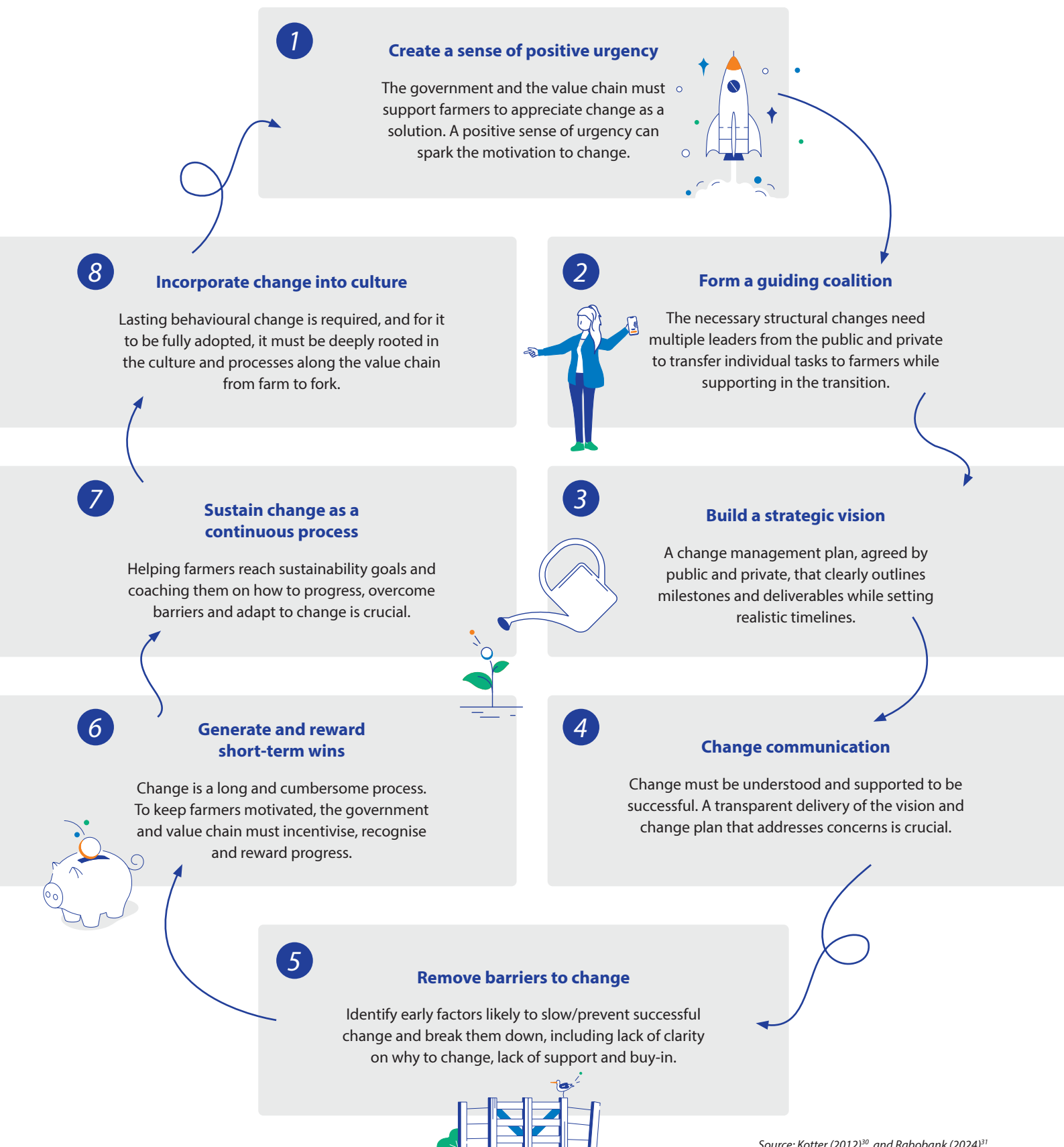
<sup>32</sup> United Nations Framework Convention on Climate Change. About carbon pricing. <https://unfccc.int/about-us/regional-collaboration-centres/the-ciaca/about-carbon-pricing>

<sup>33</sup> Hardcastle, L. (2024, March 14). Climate Change Commission recommends removal of excess ETS units as soon as possible. <https://www.bellgully.com/insights/climate-change-commission-recommends-removal-of-excess-ets-units-as-soon-as-possible/>

<sup>34</sup> Brunskill, D. (2023, December 6). Final Emission Trading Scheme auction of 2023 fails to clear, meaning 15 million units worth almost a billion dollars will be cancelled. <https://www.interest.co.nz/public-policy/125568/final-emission-trading-scheme-auction-2023-fails-clear-meaning-15-million>



## Eight steps to leading successful change



Source: Kotter (2012)<sup>30</sup> and Rabobank (2024)<sup>31</sup>

<sup>35</sup> Yu, H. Wang, H., Liang, C., Liu, Z., & Wang, S. (2022). Carbon market volatility analysis based on structural breaks: Evidence from EU-ETS and China. *Frontiers in Environmental Science*, 10. <https://doi.org/10.3389/fenvs.2022.973855>

<sup>36</sup> Balietti, A. C. (2016). Trader types and volatility of emission allowance prices. Evidence from EU ETS Phase I. *Energy Policy*, 98, 607–620. <https://doi.org/10.1016/j.enpol.2016.09.006>

<sup>37</sup> ADM. (2023). Partner with ADM for: Your responsible sourcing and environmental impact goals.

[https://www.adm.com/globalassets/standalone-pages/regenerative-agriculture/adm\\_regen-ag\\_services\\_sustainability\\_ebook2023.pdf](https://www.adm.com/globalassets/standalone-pages/regenerative-agriculture/adm_regen-ag_services_sustainability_ebook2023.pdf)

# Making progress on the home front in dairy

The dairy industry both globally and locally in New Zealand plays a significant role in the productivity and earnings for the agricultural sector but is a key contributor to emissions. Dairy companies have been aware of the need to reduce their GHG emissions for many years and have well-advanced plans to reduce emissions.

Fonterra, New Zealand's leading dairy cooperative, has set ambitious targets to reduce emissions across its operations. By 2030, Fonterra aims to achieve a 30% intensity reduction in on-farm emissions from a 2018 baseline in addition to a 50% cut in Scope 1 and 2 emissions. These targets align with efforts seen in other major dairy companies worldwide, indicating a collective commitment to addressing emissions within the industry.

Fonterra says it has adopted the strategic choice to be a leader in sustainability in order to maintain access to markets, customers and future funding and to get ahead of increased legal and reporting obligations. The Chapman Tripp report states that these drivers "are interconnected, with for example European sustainability reporting requirements influencing multinational customers' sustainability agendas",<sup>38</sup> with a forecast that around 30% of Fonterra's business-to-business gross margin will come from sustainability-focused customers by 2030.

Incentivisation schemes within the global dairy industry primarily focus on stimulating efficiency and productivity gains, with less attention afforded to strategies to reduce emissions. Fonterra's approach mirrors this trend, with a focus on tools to enhance efficiency and reduce emissions from farm inputs, manure management and renewable energy production. Over time, we expect that the global dairy industry will add more to the farmer's toolbox, with the currently untapped potential of feed additives, carbon sequestration in soil, innovative manure management techniques and methane digesters.

Rabobank's analysis of the top 10 global dairy companies, including Fonterra, indicates a growing trend towards financially rewarding farmers for assessing, measuring and reducing their carbon footprint. These rewards, often tied to results and participation, demonstrate a shift towards recognising and incentivising emissions reduction efforts.

Noticeably from the current data, the capital for these rewards mainly originates from reallocations of milk payments and company profits rather than premiums paid by consumers. This underscores the challenge of aligning consumer preferences and willingness to pay with sustainable choices, as consumers are still more likely to prioritise price over sustainably produced products.

As the dairy industry seeks even higher incentives for emissions reduction, it will be necessary for all parties and stakeholders in the value chain to contribute financially to these efforts from the farm to the end consumer as well as governments at all levels.

<sup>38</sup> Chapman Tripp, 2024, p. 8





# Building an environment to drive innovation through R&D

Technology and innovation will play a key role in the challenge of meeting the growing demand for food while mitigating environmental impacts such as GHG emissions and biodiversity loss.

While New Zealand's dairy, beef and sheep production each show one of the highest emissions efficiencies per output unit compared to our global competitors,<sup>39</sup> further emissions efficiency is required. Despite the potential benefits of innovation, transitioning to sustainable agriculture poses significant challenges.

Variability in farm conditions, geographical factors and farmer engagement levels create obstacles to implementing standardised solutions. However, these challenges also present opportunities for tailored innovations that address specific needs and circumstances.

Global best practice suggests that effective innovation does not occur in isolation or simply as a result of the strokes of genius by inspired individuals – although New Zealand has had its fair share.

## These are the key drivers of innovation:

- Technology investment:** The adoption of innovative technologies holds the key to transforming agriculture into a more sustainable industry. From precision farming and digital agriculture to genetic engineering and bioengineering, technological advancements offer promising solutions to increase productivity while reducing environmental footprint.
- Regulatory environment:** We need a supportive regulatory framework to incentivise investment in R&D and facilitate the approval and implementation of innovative solutions. Clear guidelines and streamlined approval processes can encourage innovation in agriculture while ensuring compliance with environmental standards.
- Market demand:** Consumer preferences for sustainable and ethically sourced products are driving companies to innovate and adopt more environmentally friendly practices. Meeting market demand for sustainable agriculture requires continuous innovation across the supply chain from production to distribution.

Rabobank notes that the New Zealand research system is currently in a state of suspended animation as the entire science and university ecosystem potentially transitions to new models at the instigation of the Coalition Government, which has formed dual advisory committees for the New Zealand science system<sup>40</sup> and university system.<sup>41</sup> Both committees are under the chairpersonship of Sir Peter Gluckman and are due to report back by 30 June and 30 August respectively, which are very tight timeframes for such all-encompassing reviews. For example, the broad terms of reference for the science system committee include everything from the functions, scopes and structures of the Crown research institutes to the funding and workforce of the entire science system. The review of New Zealand's eight universities will have a particular focus on the Performance-Based Research Fund, of which 96% goes to those universities.

<sup>39</sup> Beef + Lamb New Zealand & Meat Industry Association. (2022). Summary of the study on the carbon footprint of New Zealand sheepmeat and beef. <https://beeflambnz.com/knowledge-hub/PDF/summary-study-carbon-footprint-new-zealand-sheepmeat-and-beef.pdf>

<sup>40</sup> <https://mbie.govt.nz/science-and-technology/science-and-innovation/agencies-policies-and-budget-initiatives/science-system-advisory-group/tor>

<sup>41</sup> <https://www.tec.govt.nz/assets/Publications-and-others/University-Advisory-Group-Terms-of-Reference.pdf>

<sup>42</sup> Fonterra. (2022, April 29). A new phase begins in Fonterra seaweed trial aiming to reduce on-farm emissions. <https://www.fonterra.com/nz/en/our-stories/articles/a-new-phase-begins-in-fonterra-seaweed-trial-aiming-to-reduce-on-farm-emissions.html>

<sup>43</sup> Bloomberg. (2024, May 29). FDA approves feed product to cut dairy cow methane emissions. <https://businessdesk.co.nz/article/primary-sector/fda-approves-feed-product-to-cut-dairy-cow-methane-emissions>





Crown research agencies such as NIWA, in common with most other government agencies, have been asked to realise savings from operational programmes. This comes at a time when the \$680 million, 10-year National Science Challenge programme is due to expire during 2024. Four of the 11 National Science Challenges had strong elements supporting a higher-value, lower-impact primary sector with total attached funding of around \$300 million:

- **High-Value Nutrition | Ko Ngā Kai Whai Painga**  
Developing high-value foods with validated health benefits to drive economic growth.
- **New Zealand's Biological Heritage | Ngā Koiora Tuku Iho**  
Protecting and managing New Zealand's biodiversity, improving our biosecurity and enhancing our resilience to harmful organisms.
- **Our Land and Water | Toitū te Whenua, Toiora te Wai**  
Enhancing the production and productivity of New Zealand's primary sector while maintaining and improving the quality of the country's land and water for future generations.
- **Sustainable Seas | Ko ngā moana whakauka**  
Enhancing the use of New Zealand marine resources within environmental and biological constraints.

## Cutting methane emissions

Innovative fertilisers with lower GHG footprints as well as feed additives and supplements that reduce methane emissions offer promising solutions to enhance the sustainability of agricultural production systems. One such is methane inhibitors derived from the common *Asparagopsis* seaweed native to New Zealand and Australia, with bioactives used as livestock feed additives that can greatly reduce the production of methane from livestock. These naturally found bioactives have been synthesised to ensure consistency and quality of the product. For example CH4 Global is growing *Asparagopsis* at its Ocean Beach facility near Bluff. Its Methane Tamer supplement reduces burped out methane by up to 90% with beef in particular and is regulatory accepted and sold in competitive markets such as Australia and South Korea, where CH4 Global recently announced a partnership with conglomerate Lotte International for its 4.1 million cows. Currently made primarily for feedlots, not pasture-based systems, CH4 Global is busy validating a product for pasture-grazing dairy cows, that would go on the market outside New Zealand in the first quarter of 2025.

Across the ditch, Sea Forest, working alongside research teams at Australasian universities, continues to develop extraction and cultivation methods. Sea Forest is currently partnered with Fonterra Australia, entering a new trial phase that sees Fonterra farmers gain first access to the new seaweed solution.<sup>42</sup>

Another methane-inhibiting feed additive gaining ground internationally is Bovaer, which gained approval from the US Food and Drug Administration in May 2024. It is reported that Bovaer reduces methane emissions in dairy cattle by 30% on average by suppressing a digestive enzyme that generates methane. The product is sold in more than 50 countries. While it is not yet available in New Zealand and its efficacy is not yet proven with local production systems, it appears to offer considerable potential based on global approvals and uptake.<sup>43</sup>

With current New Zealand legislation defining feed additives as veterinary medicine, there are higher financial, time and research costs than faced by some of our competitors in international markets to certify products such as Methane Tamer or Bovaer as safe before they hit the shelves here.

## AgriZero<sup>NZ</sup>

A number of research collaborations remain underway to tackle the challenge presented by agricultural emissions. These include the government's Centre for Climate Action on Agricultural Emissions as part of a \$338 million focus on addressing New Zealand's agricultural emissions. The centre is made up of a research accelerator (the New Zealand Agricultural Greenhouse Gas Research Centre) and a commercial accelerator (AgriZero<sup>NZ</sup>).

The latter is a 50:50 joint venture (JV) between large agribusiness players, including Rabobank, and the government. These shareholders will provide \$183 million over its first four years to enable targeted investment and actions that will accelerate the development and deployment of tools and technologies to reduce emissions on pasture-based farms.

Over 50% of New Zealand's total emissions derive from the agricultural sector with 70% of this coming from enteric methane and manure from ruminant animals such as cows and sheep. The rest comes from greenhouse gases associated with fertiliser use and coal use in primary processing facilities.<sup>44</sup>

AgriZero<sup>NZ</sup>'s ambition is to ensure all farmers in Aotearoa New Zealand have equitable access to affordable, effective solutions to reduce biogenic methane and nitrous oxide emissions, supporting a 30% reduction by 2030 and drive towards near zero by 2040.

The ambition was set to drive a focus on game-changing solutions that will support farmers to meet the ambitious targets being set by global customers, maintain market access, protect trade agreements and support New Zealand's climate goals.

To date, the JV has invested in multiple high-impact opportunities to bring emissions reduction tools to the market, with a mix of ventures, research projects, trials and system-wide funding to unblock constraints for system-wide benefit. The JV also has 77 other potential investment opportunities on its radar as it scans the globe for solutions that could work in the New Zealand setting. In addition to investment, AgriZero<sup>NZ</sup> is also working to clarify the regulatory pathway and provide input relevant to streamlining regulation, where possible.

Chief Executive Wayne McNee has said the JV is aiming to have two to three emissions reduction tools in widespread use by 2030 to support its ambition. "There is a very real and very disruptive risk to our dairy and meat sectors from the need to reduce emissions but there is also a very real opportunity to stay among the most efficient producers of dairy products and meat in the world if we can get the right tools to farmers."

Rabobank New Zealand is a founding shareholder of AgriZero<sup>NZ</sup>, and the programme is continuing to gain momentum across the sector. In April 2024, The a2 Milk Company, ANZ Bank New Zealand and ASB Bank came on board as shareholders. With the government matching the new private sector contributions dollar for dollar, this move bolstered the AgriZero<sup>NZ</sup> fund by a further \$18 million.

The new shareholders join founders ANZCO Foods, Fonterra, Rabobank, Ravensdown, Silver Fern Farms and Synlait, with the government retaining 50% ownership through the Ministry for Primary Industries.

"The addition of more banks reflects a growing emphasis on sustainable finance and sends a strong message that the finance industry is actively supporting farmers to achieve real progress. Welcoming The a2 Milk Company also widens the dairy base, so almost all farmers are now connected to us. This will be key to support uptake of emissions reduction tools on all New Zealand farms," said Sir Brian Roche KNZM, AgriZero<sup>NZ</sup> Chair.

One focus of the JV's investment portfolio is a vaccine to reduce methane emissions from ruminant animals. The JV has invested in two research programmes – one in the United States and local New Zealand work, which has been under way since 2007. As part of its efforts to accelerate the New Zealand work, AgriZero<sup>NZ</sup> is establishing a new vaccine entity to support a stronger focus on vaccine development and attract international funding to help deliver a world-first solution to market.

As at 31 March 2024, the JV had committed \$29.2 million across 10 investments to accelerate development of emissions reduction tools for pasture-based farms.<sup>45</sup>

<sup>44</sup> New Zealand Agricultural Greenhouse Gas Research Centre (2021, March 29). The science of methane. [www.nzagrc.org.nz/domestic/methane-research-programme/the-science-of-methane](http://www.nzagrc.org.nz/domestic/methane-research-programme/the-science-of-methane)

<sup>45</sup> AgriZero<sup>NZ</sup>. (2024, May 22). progress update | Scorecard Q3 FY24. [www.agrzero.nz/news/progress-update-scorecard-q3-fy24](http://www.agrzero.nz/news/progress-update-scorecard-q3-fy24)

























<sup>46</sup> Petrović, P., & Lobanov, M. M. (2020). The impact of R&D expenditures on CO<sub>2</sub> emissions: Evidence from sixteen OECD countries. *Journal of Cleaner Production*, 248, 119187. <https://doi.org/10.1016/j.jclepro.2019.119187>



#### PROJECTED TIMELINE



#### INVESTMENT HIGHLIGHTS

Ruminant Biotech	   	\$1.8m
Research & Trials*	   	\$3.2m
New Greenhouse Gas Testing Facility	 	\$4m
Hoofprint Biome	 	\$4.2m
ArkeaBio <small>UPDATED</small>	   	\$9.9m
NZ methane vaccine venture setup <small>NEW</small>	   	\$1m
BioLumic <small>NEW</small>	   	\$5m

\*Includes multiple projects



## Netherlands transition to reduced nitrogen

The Netherlands serves as a compelling example of the transformative power of innovation to achieve environmental objectives. The country's nitrogen reduction transition underscores the importance of innovation in addressing complex environmental challenges. By implementing existing technologies and developing new ones, the Netherlands aims to achieve significant reductions in nitrogen emissions, demonstrating the crucial role of innovation in driving sustainable agricultural practices.

Studies conducted across 16 OECD countries highlight the positive correlation between R&D investment and emissions reduction. At the aggregate level of the 16 countries, every 1% increase in R&D investment saw CO<sub>2</sub> emissions decrease by an average of 0.09–0.15%. This underscores the importance of prioritising R&D to drive innovation and achieve sustainability goals in agriculture. However, targeting is critical because not all countries demonstrated the same improvements.<sup>46</sup>

# Owning the lower-emissions future

The recent easing of some New Zealand Government-initiated regulatory pressures on Kiwi farmers has no doubt been welcome amid a myriad of other pressures on the sector such as ongoing inflation. However, it will bring risk if this 'breathing room' transmutes into complacency. To coin a phrase, it is not the beginning of the end, it is the end of the beginning for climate science and the imperative to reduce emissions. New Zealand producers need to avoid the temptation to coast on this extra time and hope for a further regulatory extension or a magical technology solution. It is not realistic to simply kick the can down the road.

To continue to access global markets – with 80% of our exports already going to markets with significant emissions targets and climate disclosure obligations – we will still need to meet a web of international market obligations.

Reducing emissions is not just an administrative requirement or an add-on or something at the margins of concern for the operators of farming businesses and those that support them. It's a key part of the core business of risk management for every farming operation. It's also the best thing we can do to slow down the progress of climate change. Maintaining our position as one of the most emissions-efficient agricultural producers globally is by no means solely a defensive posture – it is our emissions edge that will provide ever-stronger opportunities for New Zealand farmers and growers in the years and decades ahead.

In April 2023, New Zealand's own Ministry for Primary Industries gently rocked a few boats with its speculation in a report exploring global demand opportunities for New Zealand producers in 2050.<sup>47</sup>

The report contended that New Zealand's temperate climate will expose the country to fewer super-disruptive events relative to other global producers.

"Our existing export food markets are in a very good position. While we will need to maintain and build our own resilience, New Zealand should benefit from growing demand and higher prices that may arise from climate disruption and an increasing world population."<sup>48</sup>

Human-generated climate change has accumulated and accelerated over tens of decades in association with the growing global population, the rise of industrialisation, consumption of fossil fuels and growth in all modes of production, including food and agriculture. Just as the issues have not arrived overnight, nor will the solutions. The New Zealand food and agricultural sector will be well served by reading the economic signals, not listening to the noise (from both sides) and by keeping up the focus on reducing emissions despite the current respite it may enjoy from regulatory burden.

Agriculture will unquestionably play a crucial role in achieving those New Zealand-wide emissions reductions – agricultural emissions make up 50% of New Zealand's gross emissions,<sup>49</sup> including most of New Zealand's nitrous oxide and biogenic methane emissions. It is time to convert the challenges into opportunities and to allow farmers – who are expected to deliver big time on change – to be rewarded and to ensure New Zealand's agricultural sector remains in a strong position compared to our competitors abroad.

New Zealand agriculture is not alone in facing significant change. The transition is happening in many regions of the world, albeit at a different pace and intensity.

The needed transformational change on New Zealand's farms and along the whole food and agribusiness value chain won't be easy. New Zealand is among the leading countries in the world in the transition. As a front runner, we cannot look at many others around the world to see what works and what does not work in leading this transition. As always when it comes to significant change, the country and industry will face resistance, doubts, worries and a need to overcome challenges.

Change to farming in New Zealand is under way and the transition towards more sustainable food production, including reduced emissions, requires strong support to the 50,000 farms across New Zealand. It's obvious to most involved why the changes are required, but a big question mark remains over precisely how this will be achieved and who will pay.

Government, industry and farmers have goals and targets, and the transition on farm will need to be one based on partnership. Farmers are used to change and able to adapt, but it is human nature to appreciate the status quo as safe while resisting change because of the uncertain and potential risks it might bring.

<sup>47</sup> Ministry for Primary Industries. (2023). The future of Aotearoa New Zealand's food sector: Exploring global demand opportunities in the year 2050. <https://www.mpi.govt.nz/dmsdocument/56350-The-Future-of-Aotearoa-New-Zealands-Food-Sector-Exploring-Global-Demand-Opportunities-in-the-Year-2050>

<sup>48</sup> Ibid, p.18.

<sup>49</sup> Ministry for the Environment. (2022, May 16). Agriculture. <https://environment.govt.nz/publications/aotearoa-new-zealands-first-emissions-reduction-plan/agriculture/>



In our 2022 and 2023 white papers, we discussed the challenges of balancing New Zealand's emissions reduction targets with the need for New Zealand agriculture to deliver on food security, a healthy export-driven national economy and the prosperity of rural communities. In this 2024 white paper, we have focused largely on selected pathways that can help farmers and the value chain to achieve the needed transformational changes.

### *In summary, we need to:*

- know the numbers – develop authoritative benchmarking to identify efficient farming
- provide clear and strong incentives to support efficient farms and uplift average performers
- build an environment to drive innovation through R&D.

### **Together we can – and must – convert the challenges of change into opportunities, including:**

- for farmers who are the centrepiece of the transition and who will have to do the heavy lifting of successfully changing farm practices
- for the industry, which is currently struggling to convince consumers to fund the costs of higher sustainability standards and reduced emissions
- for the government to achieve its local and global emissions and sustainability commitments while balancing them with the country's economic growth and prosperity of rural communities.

The 'why' is clear – farmers, the supply chain and consumers in New Zealand and many other parts of the world understand the importance of operating sustainably. The 'how' is still in the process of becoming clear, like driving in a vehicle with misted-up windows. Therefore, it is time to create opportunities for those who can provide this clarity and drive and execute the needed changes.

Providing support to farmers in the transition and driving positive change to reward achievements is key. New Zealand's food and agribusiness sector and governments in New Zealand and around the world have shown in the past that large-scale changes are possible and will rise again to the task.

New Zealand's food and agribusiness industry has already delivered sustainability advancements and emissions reductions by implementing and scaling farming best practice, novel technologies and carbon removal on farm. However, more effort is required. That's what Rabobank – in partnership with the supply chain, farmers and legislators – will continue to work on.







*Working together to make it happen.*

Rabobank New Zealand is a part of the global Rabobank Group, the world's leading specialist in food and agribusiness banking. Rabobank was set up in the Netherlands over 120 years ago as a cooperative – by farmers, for farmers. Today, it operates in 38 countries and services the needs of clients through a network of close to 1,000 offices and branches. As New Zealand's only specialist food and agribusiness bank, Rabobank NZ has a focus on supporting Kiwi farmers, growers and food producers. Our 500-strong team works from 27 offices across New Zealand and are deeply committed to the communities where they live and work. [rabobank.co.nz](https://rabobank.co.nz)

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